

# Measurement and Assessment of Flow Quality in Wind Tunnels, Phase II

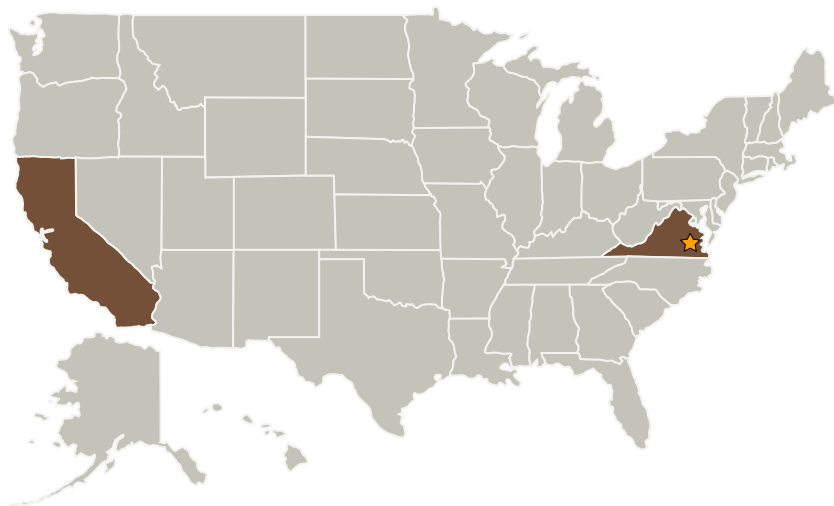
Completed Technology Project (2007 - 2009)



## Project Introduction

New wind tunnel flow quality test and analysis procedures have been developed and will be used to establish standardized turbulent flow quality measurement techniques and data reduction procedures for future flow quality studies in the National Transonic Wind Tunnel (NTF) and other Aeronautics Test Program (ATP) facilities. To date, few measurements have been made of the characteristics of freestream turbulence in transonic wind tunnels, and details of the amplitude and spectra of freestream velocity and pressure fluctuations is lacking. Consequently, there is an urgent need for in-situ measurements to determine flow quality and the performance of turbulence and noise suppression devices. This information is required if we are to accurately assess and characterize ground test facility performance. To meet these challenges, a unique research program is proposed to clarify and alleviate the aerodynamic problems associated with adverse wind tunnel flow quality. It combines innovative advances in data base assessment and management, and new approaches to turbulence instrumentation and analysis. Standardized turbulence measurement techniques and data analysis procedures will be established and used to document the flow quality in our major test facilities.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Langley Research Center (LaRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Complere, Inc.	Supporting Organization	Industry	Pacific Grove, California

Primary U.S. Work Locations	
California	Virginia

## Project Transitions

**November 2007:** Project Start**November 2009:** Closed out

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX15 Flight Vehicle Systems
  - └ TX15.1 Aerosciences
    - └ TX15.1.1 Aerodynamics